Meeting: 998, Houston, Texas, SS 9A, Special Session on Probability and Stochastic Processes

998-60-198 **Joshua Levy*** (levyj@mrs.umn.edu), Division of Science and Mathematics, University of Minnesota Morris, 600 East Fourth Street, Morris, MN 56267. *Analysis of codependence of linear fractional stable noise.* Preliminary report.

We present an overview of new and past results on the long-run codependence of linear fractional stable noise (LFSN), a stationary symmetric α-stable process with index $0 < \alpha < 2$. It has representation

$$\int_{-\infty}^{\infty} f_{\alpha,H}(a, b; t, x) M(dx).$$

M is a symmetric α-stable random measure on the real line R having Lebesgue control measure and $f_{\alpha,H} \in \mathrm{L}^{\alpha}(R)$. H affects the persistence (long-range dependence) of the process and satisfies $H \in (0, 1), H \neq 1/\alpha$. a and b are real numbers not both zero that prescribe the linearity. For given α and H LFSN is usually a different process as a and b vary.

Since it has infinite variance the covariance is unviable to examine its codependence. Two surrogate measures are the *codifference* and the *covariation*. Applying either the codifference (past results) or covariation (new results) proves that over time the codependence of LFSN converges geometrically to zero. It is somewhat surprising that in most instances these measures' convergence rates are asymptotically proportional. An exception is when $a = 0, b = 1$: for a certain subinterval of H depending on α, the covariation converges faster than the codifference. (Received March 03, 2004)